

as before, the hot platinum was very slightly negative in strong acid: in dilute acid there was no sensible current.

925. *Strong nitric acid* at first seemed to give decided results. Platinum and pure strong nitric acid being heated at one of the junctions, the hot platinum became constantly negative across the electrolyte to the cold metal, the deflection being about 2°. When a yellow acid was used, the deflection was greater; and when a very orange-coloured acid was employed, the galvanometer needle stood at 70°, the hot platinum being still negative. This effect, however, is not a pure thermo current, but a peculiar result due to the presence of nitrous acid (836). It disappears almost entirely when a dilute acid is used (922); and what effect does remain indicates that the hot metal is negative to the cold.

926. Thus the *potash solution* seems to be the fluid giving the most probable indications of a thermo current. Yet there the deflection is only 5°, though the fluid, being very strong, is a good conductor (807). When the fluid was diluted, and of specific gravity 1070, like that before used (920), the effect was only 1°, and cannot therefore be confounded with the results I have to quote.

927. The dilute *sulphuric* (923) and *nitric* acids used (922) gave only doubtful indications in some cases of a thermo current.

On trial it was found that the 'thermo current of an antimony-bismuth pair could not pass these solutions, as arranged in these and other experiments (937, 938); that, therefore, if the little current obtained in the experiments be of a thermo-electric nature, this combination of platinum and acid is far more powerful than the antimony-bismuth pair of Seebeck; and yet that (with the interposed acid) it is scarcely sensible by this delicate galvanometer. Further, when there is a current, the hot metal is generally negative to the cold, and it is therefore impossible to confound these results with those to be described where the current has a contrary direction.

928. In strong nitric acid, again, the hot metal is negative.

929. If, after I show that heat applied to metals in acids or electrolytes which *can act on them* produces considerable currents, it be then said that though the metals which are inactive

in the acids produce no thermo currents, those which, like copper, silver, etc., act chemically, may; then, I say, that such would be a mere supposition, and a supposition at variance with what we know of thermo-electricity; for amongst the solid conductors, metallic or non-metallic (855), there are none, I

